Success of MA Burned Motor Vehicle Reporting Law

The following sections are excerpts from the 2005 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS).

The entire report and subsequent years may be found at: http://www.mass.gov/dfs/

1. Click on Fire Prevention (under Our Organization)
2. Click on Fire Statistics
3. Click on 2005 MFIRS Annual Report (or subsequent years)

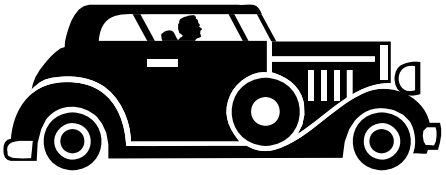
Key Segments on Motor Vehicle Arsons

- Motor Vehicle Fires
  - The Burned Motor Vehicle Reporting Law
  - Causes of Motor Vehicle Fire by Time of Day
- Arson Fires
  - Motor Vehicle Arsons

Motor Vehicle Fires

3,666 Motor Vehicle Fires Account for 13% of All Reported Fires

The 3,666 motor vehicle fires accounted for seven, or 13%, of civilian fire deaths, 27 civilian injuries, 23 fire service injuries, and an estimated property damage of $14.8 million. Motor vehicle fires accounted for 13% of total reported fire incidents. The 3,666 fires in 2005 are a 4% decrease from the 4,037 motor vehicle fires in 2004.



According to MFIRS, a motor vehicle fire is defined as any fire involving a car, truck, boat, airplane, construction equipment or other mobile property (not being used as a permanent structure) that occurs outside of a structure.

The Burned Motor Vehicle Reporting Law

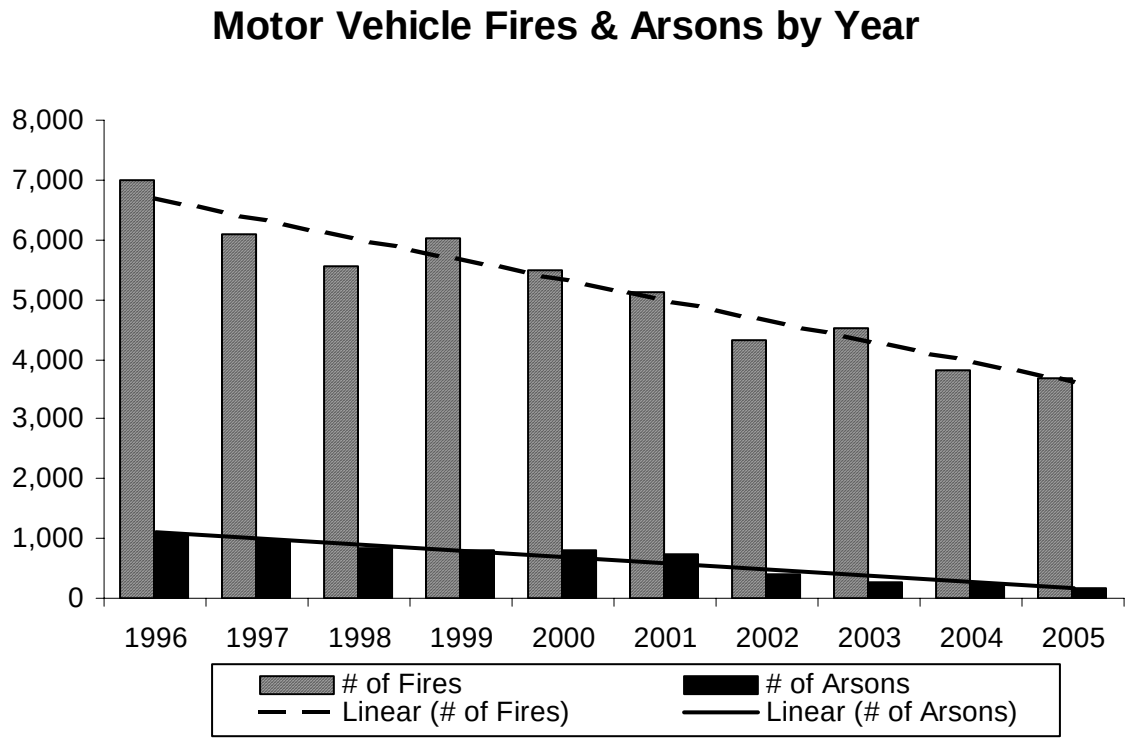
The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. This law has been effective in reducing motor vehicle fires overall and vehicle arsons in particular. Since it took effect in 1987, motor vehicle arsons have decreased 96% from a high of 5,116 in 1987 to 177 in 2005. The percentage of motor vehicle fires that are arsons has also dropped 80% in the past decade from 16.5% in 1993 to 4.8% in 2005.

The table below shows the number of vehicle fires and vehicle arsons and the percentage of vehicle fires caused by arson for the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	Vehicle Fires	Vehicle Arsons	% Arsons
2005	3,666	177	4.8%
2004	3,825	227	5.9%
2003	4,533	280	6.2%
2002[1]	4,331	395	9.1%
2001	5,127	743	14.5%
2000	5,473	798	14.6%
1999	6,011	818	13.6%
1998	5,565	836	15.0%
1997	6,096	979	16.1%
1996	6,980	1,082	15.5%

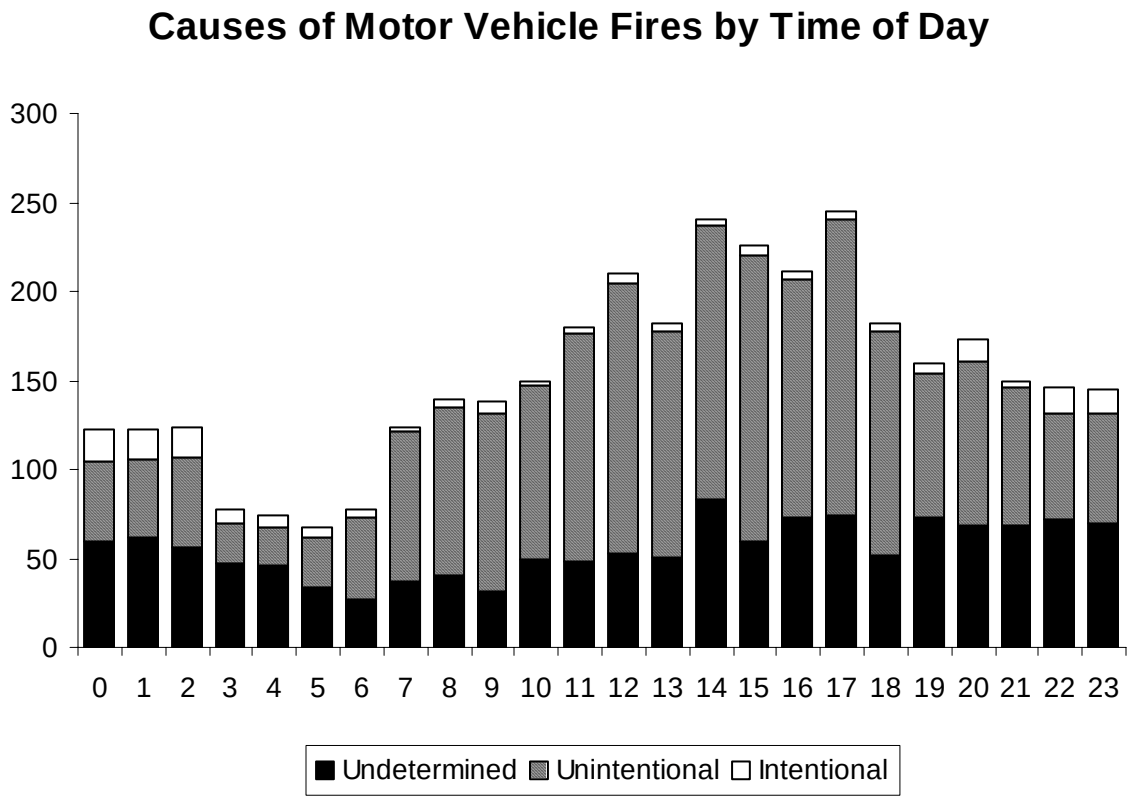
The following graph illustrates the data in the table.



[1] 2002 was the first full year of using only V5 data. As a result, 'Suspicious' was eliminated as a cause and only 'Intentional' fires were counted as arson, thus the significant drop in MV arsons from 2001-2002.

Mechanical Failures Caused 27% of Massachusetts Motor Vehicle Fires
Of the 3,666 motor vehicle fires in 2005, 27% were caused by some type of mechanical failure or malfunction; 5% were considered intentionally set and 32% resulted from other accidental causes. The cause was undetermined or not reported in 34% of the motor vehicle fires.

Unintentional Fires Occur During Day and Early Evening
Motor vehicle fires of different causes occur at different times of the day. As the following graph shows, accidental or unintentional fires are more common during the day and early evening. Incendiary fires are generally set in darkness. The graph below shows fire frequency by time of day on the 24-hour clock for the causes of motor vehicle fires. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc.



Almost 2/3 of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 62% of the 3,666 motor vehicle fires, 1% were trucks weighing less than one ton and 4% were trucks weighing more than one ton.

Car Fire Safety Tips
Regular maintenance is the best way to prevent car fires. Leaking gasoline, oil and hydraulic fluids can catch fire. Electrical problems can cause short circuits and heat build-up. A properly operating catalytic converter can reach 1,100° F. It can get even hotter if the car has worked hard or needs a tune-up. If other parts come in contact with it,

they can ignite. Catalytic converters on parked cars will sometimes ignite a pile of leaves or dried grass underneath.

What Should You Do if You Have a Car Fire?

1. Pull over to the side of the road and stop as soon as possible. For automobiles with an automatic transmission put the vehicle in Park; or for cars with a manual transmission, set the parking brake and put it in gear. Fire can disable a car's electrical system in seconds. Power steering and brakes can be harder to use than normal.
2. Turn off the ignition. You want to make sure no more gasoline is pumped to the fire.
3. Get everyone out of the car.
4. Move away and call 911. Do not open the hood. You risk injury, and give the fire more oxygen.

Unless you're trained, let firefighters handle it. They wear protective clothing and are trained to handle pressurized systems, exploding bumpers, etc. Chemicals in the fire extinguisher can be compacted. To be effective, they must be used correctly. You don't want to practice in a panic situation.

Gasoline Deserves Respect

There were 50 motor vehicle fires at gas and service stations in 2005. There were 50 motor vehicle fires at facilities used for motor vehicle or boat sales, service or repairs. Many of these fires were started by gasoline or the gasoline fumes. Gasoline is so much a part of our lives that we don't think about it. However, it is a very dangerous substance and certain measures should be taken to minimize the chances of an incident.

Gas Station Safety

- Turn off your car when you get gas.
- At self-service stations, remember to put the nozzle back and your gas cap on before driving off. Monitor the fueling; do not get back in the vehicle.
- Gasoline vapors burn at a very low temperature. These fumes are heavier than air, and can travel a distance to find a spark. Keep anything that could provide heat to start a fire away from gasoline. A spark or a lit cigarette is enough to ignite the invisible fumes that may linger on clothing.
- If you need to carry or store gasoline, use an approved container.
- When filling an approved container, place it on the ground to prevent static electricity build–up which could ignite the gasoline vapors. Make sure that the nozzle is always in contact with the container when filling.
- Make sure the approved container is in a secured, upright position away from passenger areas, and that the fill and vent openings are tightly closed. At home, always store these containers in safe secure areas – outside of living areas – away from ignition sources such as pilot lights.

Arson Fires

1,218 Arsons - 339 Structures, 176 Vehicles, 703 Other Arsons
One thousand two hundred and eighteen (1,218), or 4%, of the 28,793 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[2]. The 339 structure arsons, 176 motor vehicle arsons, and 703 outside and other arsons caused seven civilian deaths, accounting for 13% of civilian fire deaths, 12 civilian injuries and 27 fire service injuries. The estimated dollar loss from arsons was $12 million. The average dollar loss per arson fire was $9,818. Total arson was down 18% from 1,477 in 2004.

'Suspicious' Eliminated as a Cause of Ignition
In version 5, arson is defined as Cause of Ignition is intentional and the age of the person involved is greater than 17, whereas in version 4 we included both intentionally set and suspicious fires in our definition of arson. In version 5, suspicious is eliminated, and the more accurate description Cause of Ignition = Cause Under Investigation is used.

1,186 Fires with Cause Still Under Investigation
In 2005, 1,186 Massachusetts fires were still listed as Cause Under Investigation. There were 2,776 fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a larger drop than expected in reported arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is. It is important that fire departments update their fire incident reports when either a cause is determined or its cause is deemed to be undetermined after investigation.

Rubbish Fires Collect No Causal Data
Another reason for this large drop is that in version 5, outside rubbish fires such as dumpster fires and confined indoor rubbish fires use the abbreviated reporting format where a Fire Module is not needed and the field Cause of Ignition is not captured. Thus many intentionally set rubbish fires will not be counted as arsons.

New Arson Module Will Bring Better Understanding & Tracking of Arsons
One of the new modules in version 5 is the Arson Module. This module contains many new data fields that we can use to identify when and where the crime takes place, what form it takes, and the characteristics of its targets and perpetrators. With this information we can develop and implement arson prevention initiatives and track trends to see if any arsons in an area exhibit similar characteristics.

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[2] In MFIRS v5 a fire is considered an arson if the Cause of Ignition = 1 (Intentional) and the Age of Person (Fire Module) is greater than 17 or if the field is blank; or if the Wildland Module is used, the Wildland Fire Cause = 7 (Incendiary) and the Age of the Person (Wildland Module) is greater than 17 or if the field is left blank.

One of the new fields is 'Other Investigative Information.' This field identifies other information pertinent to the case. In 2005, 31%, of the 54 reported arsons which had this field completed, occurred in vacant structures; 26% had some other crimes involved; 13% had some code violations; 9% were reported to have criminal or civil actions pending; another 9% occurred in structures that were for sale; 6% reported financial problems; 4% were involved with some illicit drug activity; and in 1% of these incidents there was a recent change in insurance.

Suspected Motive

Another new field is 'Suspected Motivation Factors.' It indicates the suspected stimulus that caused the subject to burn any real or personal property. In 37% of the 258 reported arsons that had this field completed, the motive was thought to be from playing with fire or curiosity of fire. Personal motivation was suspected in 16% of these arsons; in 10% the motive was for thrills; in 8% was looking for some attention or sympathy; in 4% the arsonist was suicidal; in 3% each, the arsonist was believed to be acting out against society, trying to intimidate someone, was concealing an auto theft, was concealing a burglary, was an act of domestic violence or was an act of vanity or for recognition. In 2% of these incidents the arson was believed to be a hate crime or an act against a specific institution. In 1% of these arsons, the fire was set to conceal a homicide, destroy records or evidence, or happened during a burglary.

Incendiary Devices

Gasoline or other fuel cans were the leading container of incendiary devices. Ordinary combustibles such as paper and wood, and ignitable liquids were the leading fuels of reported incendiary devices.

The following table shows the total number of reported arsons for the past 10 years. The total is then broken down into total number of reported structure, vehicle and all other types of arsons along with that subtotal's percentage of the total number of arsons. It also illustrates that structure arsons and motor vehicle arsons are at an all time low. 2005 was the lowest total for outside and other arsons in the last 10 years.

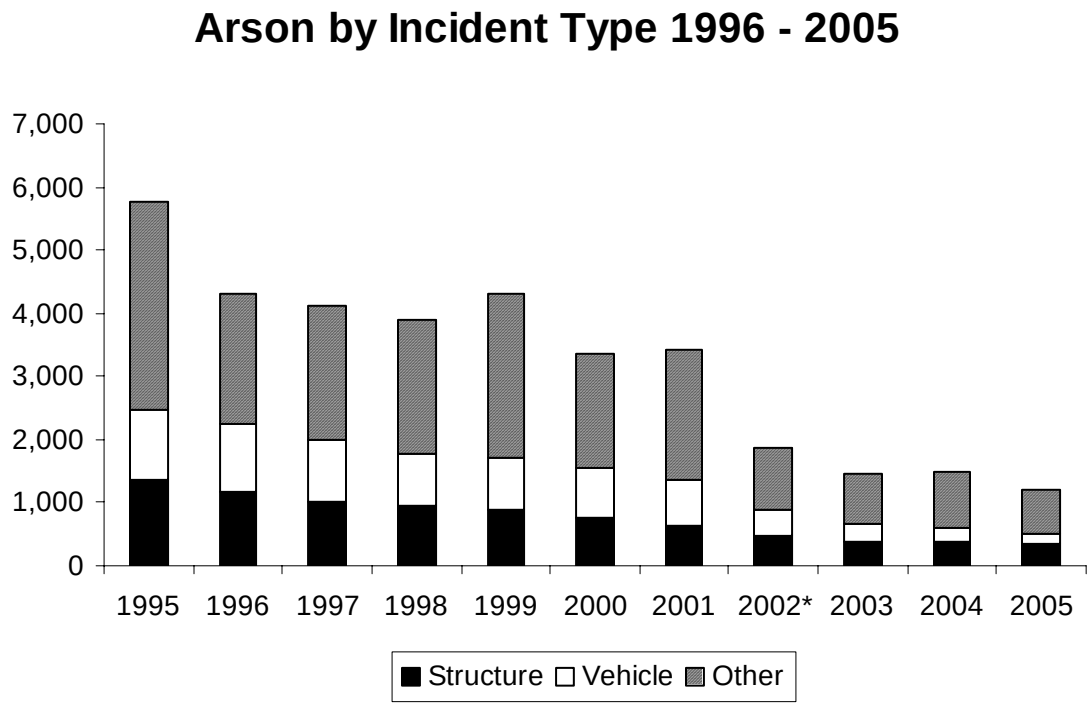
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2005	1,218	339	28%	176	14%	703	58%
2004	1,477	373	26%	227	15%	877	59%
2003	1,491	381	26%	280	19%	830	56%
2002*	1,867	488	26%	395	21%	991	53%
2001	3,426	620	18%	743	22%	2,063	60%
2000	3,360	747	22%	798	24%	1,815	54%
1999	4,307	886	21%	818	19%	2,603	60%
1998	3,882	939	24%	836	22%	2,107	54%
1997	4,131	1,020	25%	979	24%	2,132	52%
1996	4,296	1,168	27%	1,082	25%	2,046	48%

*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

Largest Reduction in Outside & Other Arsons

The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson, structure, motor vehicle and outside and other arsons. The trend has been for structure arsons to comprise a smaller percentage of total arsons, while the percentage of outside and other arsons of total arsons has risen during the same time span. Looking at these ratios allows one to more clearly identify specific fire problems, such as increases in structure or motor vehicle arsons. Trends may be masked if you were to look just at total numbers.



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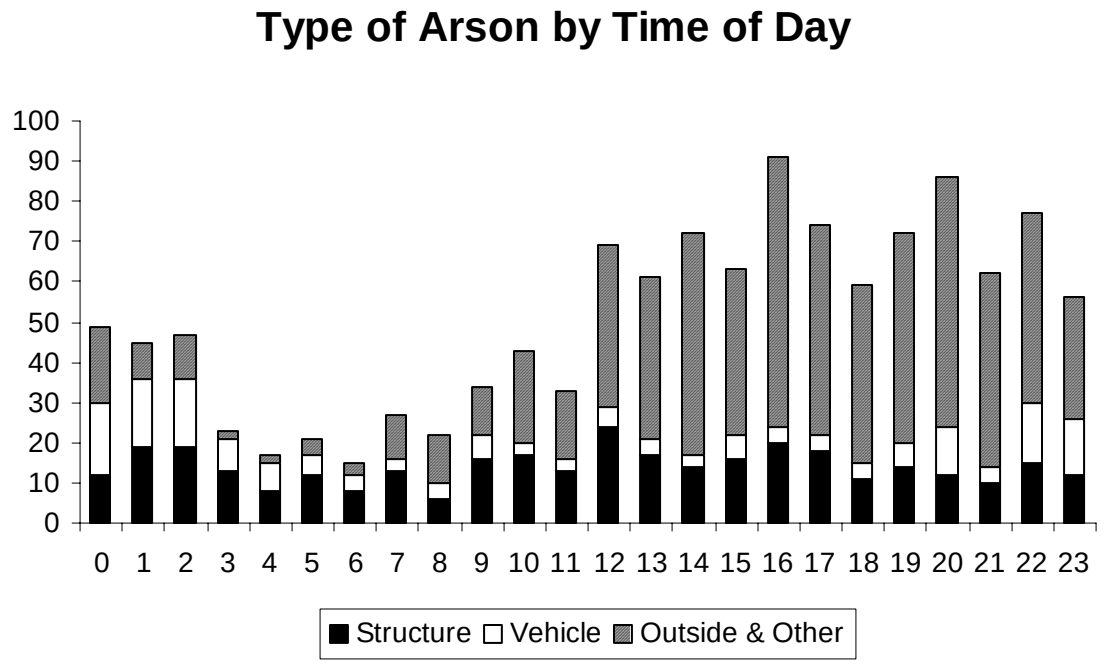
For instance, outside and other arsons numbered 2,046 in 1996 and 703 in 2005. While we have a huge drop in the total numbers of reported outside and other arsons, the ratio or percentage of outside and other arsons to total arsons has remained at or above 50%.

The following chart illustrates the types of arsons by the time of day they occur. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc. Arson is most likely to occur between the hours of 4:00 p.m. to 10 p.m. The peak times for structure arson were from 12:00 p.m. and 5:00 p.m. Motor vehicle arsons were most likely to occur between 10:00 p.m. and 2:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 8:00 p.m.



Marblehead has Largest Loss Arson in 2005

- On November 12, 2005, at 9:37 p.m., the Marblehead Fire Department was called to a fire in a 5-story, 40-unit apartment building that was under construction. The fire is believed to have been intentionally set in the basement. The project was a Chapter 40B development project and there was some opposition to it in the community. There were no injuries associated with this fire. It was undetermined if detectors were present in the building. Sprinklers were not present. Damages from this fire were estimated to be $4,000,000.

Bourne Had 2nd Largest Loss Arson in 2005

- On January 4, 2005 at 5:03 a.m., the Bourne Fire Department was called to an arson fire at a restaurant. The fire began in a storage area in the basement. This blaze was the largest loss fire in this category of structure fires, with an estimated $600,000 worth of damage done. One firefighter was injured fighting this fire. It was undetermined if smoke detectors were present. Sprinklers were not present.

Motor Vehicle Arson

176 Arsons, 1 Civilian Death, 2 Civilian Injuries & 1 Fire Service Injury

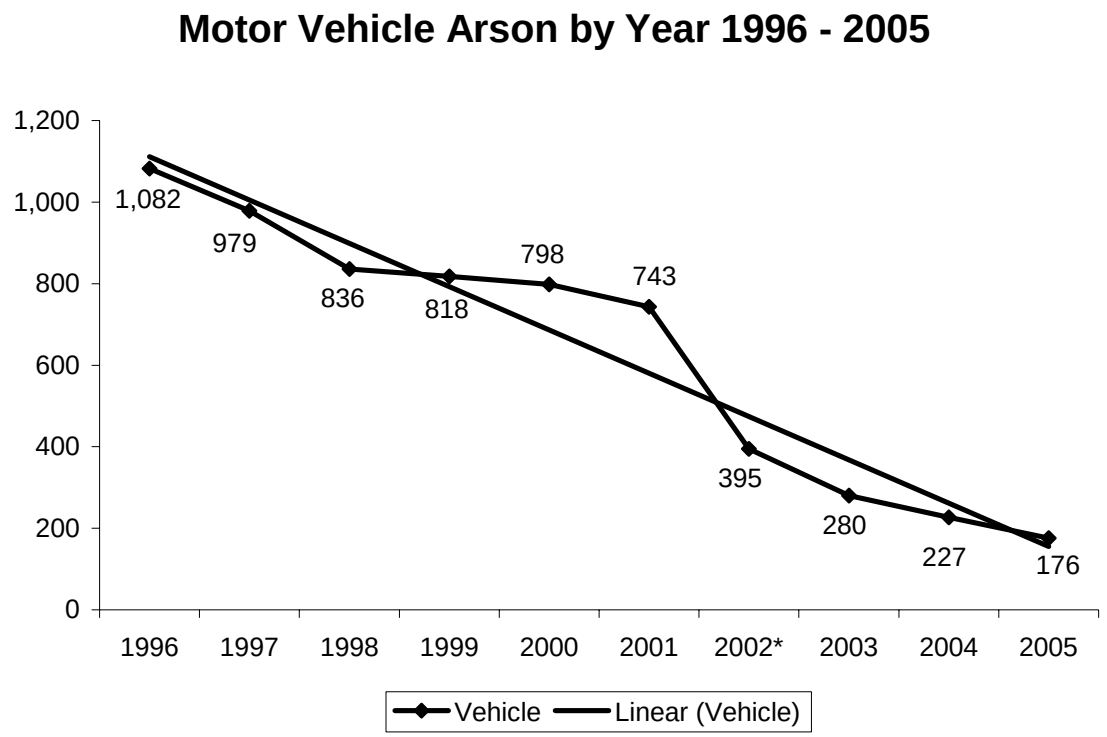
One hundred and seventy-six (176), or 5%, of the 3,666 vehicle fires were considered intentionally set in 2005. The one civilian death, an act of self-immolation, accounted for 2% of the overall civilian deaths and 14% of the motor vehicle deaths. The two civilian injuries accounted for 1% of the total civilian injuries and 7% of civilian injuries associated with motor vehicle fires. The one fire service injury accounted for less than 1% of the total fire service injuries and 4% of firefighter injuries associated with motor vehicle fires. The estimated dollar loss in motor vehicle arsons was $1 million,

accounting for less than 1% of the overall fire dollar loss and 7% of the dollar loss associated with all the 2005 motor vehicle fires. The average loss per vehicle arson was $5,686. Passenger cars and vans accounted for 83% of the 165 motor vehicle arsons for which mobile property type was reported.

In 2005, 428 Massachusetts motor vehicle fires were still listed as Cause Under Investigation. There were 809 motor vehicle fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a sudden drop in reported motor vehicle arsons in 2002. Only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is. After four years of version 5 however, the data clearly shows a downward trend.

The Burned Motor Vehicle Reporting Law

The Massachusetts Fire Incident Reporting System first identified motor vehicle fires and motor vehicle arson as a major problem in 1985 and the Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. The graph below shows the effectiveness of this law. Since the law took effect in 1987, motor vehicle arsons have decreased 97% from 5,116 in 1987 to 176 in 2005.



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